

**POLICIES FOR THE  
DEREGULATED AIRLINE INDUSTRY**

**The Congress of the United States  
Congressional Budget Office**

---

**For sale by the Superintendent of Documents, U.S. Government Printing Office  
Washington, DC 20402**



## PREFACE

---

---

---

---

---

Ten years ago the Congress passed the Airline Deregulation Act, ending government control over the routes airlines could serve and the prices they could charge. Deregulation has led to far-reaching changes in the industry. At the request of the Senate Governmental Affairs Committee, this study reviews these developments and discusses policies that the Congress might consider for improving the industry's performance. In keeping with the mandate of the Congressional Budget Office to provide objective analysis, it makes no policy recommendations.

Daniel P. Kaplan played a major role in the development of the project and wrote the report along with Mark R. Dayton. It was prepared in CBO's Natural Resources and Commerce Division under the supervision of Everett M. Ehrlich and Jenifer A. Wishart. Sandra Christensen, David Lindeman, and Linda Radey of CBO made helpful suggestions. Severin Borenstein, Alfred E. Kahn, and Daniel Kasper offered a number of valuable comments. The manuscript was edited by Francis S. Pierce. Margaret Cromartie typed the many drafts, and Nancy H. Brooks and Kathryn Quattrone prepared the report for publication. The cover photograph is from Federal Aviation Administration files.

James L. Blum  
Acting Director

July 1988



## CONTENTS

---

---

---

---

---

	SUMMARY	vii
I	AN OVERVIEW OF AIRLINE DEREGULATION	1
	The Regulation and Deregulation of the Airline Industry	1
	The Effects of Deregulation	4
	The Safety Issue	16
	The Outlook Under Deregulation	18
II	THE INDUSTRY'S CONSOLIDATION	23
	Advantages of Size	23
	Mergers	31
III	AVIATION SYSTEM CAPACITY AND THE PROBLEMS OF CONGESTION AND DELAY	37
	The Airway System	38
	The Airport System	43
	Management of Congestion in the Aviation System	54
IV	OPTIONS FOR INCREASING COMPETITION AND REDUCING CONGESTION	57
	Increasing Competition in the Industry	57
	Reducing Congestion	63

---

TABLES

1.	New Entrants into Interstate Service	12
2.	Mergers and Acquisitions Involving Formerly Regulated Carriers	14
3.	Structure of the Domestic Airline Industry	15
4.	Effective Numbers of Firms Serving City-Pair Markets	17
5.	Airport Size and Carrier Hub Operations, 1985	35
6.	Sources of Airport Investment	46

## FIGURES

1.	Labor Productivity: Actual vs. Trend Under Regulation	5
2.	Domestic Air Fares: Actual vs. Trend Under Regulation	6
3.	Air Traffic of Scheduled Domestic Carriers: Actual vs. Trend Under Regulation	7
4.	Operating Profit Margins on Domestic Operations: Actual vs. Average Under Regulation	20
5.	Trust Fund Revenues and FAA Outlays	40
6.	Flight Operations of 14 Reporting Air Carriers, October 1987	50
7.	Flight Delays of 14 Reporting Air Carriers, October 1987	52

## SUMMARY

---

---

---

---

The airline industry has seen sweeping changes in the 10 years since the Airline Deregulation Act was passed. Withdrawal of government control over the fares airlines can charge and the routes they can serve has led to lower fares and greater travel. It has also spurred the growth of hub-and-spoke route networks, which have made air service more convenient by offering an increasing amount of single-carrier service. Although competition among carriers serving a given market has, on average, increased, the largest firms in the industry now control an unprecedented share of the total traffic. This consolidation has raised some concern about the future performance of the industry.

Moreover, the infrastructure has not kept pace with the growth in air traffic. The resulting congestion threatens to offset much of the gain from deregulation, and the government has yet to develop a viable strategy to deal with the problem. Expanding the capacity of the aviation system would take years and would be expensive. A more promising solution might be to manage the existing capacity more efficiently.

## COMPETITION

---

At the time the Congress passed the Airline Deregulation Act, most analysts believed that increasing an airline's size would not, above some relatively modest scale, substantially reduce its unit operating costs. Many also believed that when fares between two cities exceeded the costs of providing service, other carriers would be quick to enter the market. Entry and the threat of entry were expected to discipline carrier behavior in the absence of regulation.

While an airline's size may still not have much effect on its operating costs, large carriers may have certain advantages in attracting passengers to their flights. The ability to use the hub-and-spoke route systems, frequent flyer programs, and computer reservation sys-

tems--all of which depend on size to some degree--seems to have played an important role in the industry's consolidation. These same factors also appear to have made entry more difficult.

### Advantages of Size

The Airline Deregulation Act removed government-imposed barriers that had prevented airlines from entering new markets. Not surprisingly, this encouraged entry by the formerly regulated carriers as well as by carriers that had not previously provided scheduled interstate air service. The largest carriers, the "trunks," initially bore the brunt of this new competition. New airlines, with substantially lower costs, competed on the basis of price. The "local service carriers," which had provided largely regional service under regulation, competed on the basis of service: they began flying to an increasing number of cities outside their traditional routes and were able to offer single-carrier service to an increasing number of destinations.

The trunks responded in a number of ways. They took steps to reduce labor expenses, the major source of their cost disadvantage. They developed sophisticated pricing systems that allowed measured responses to low-fare competition. They reconfigured their operations into hub-and-spoke route networks in order to provide more single-carrier service. They introduced frequent flyer programs to help create brand loyalty. Some of the larger carriers also aggressively marketed computer reservation systems; among other things, these enabled carriers to influence the recommendations of travel agents. These responses proved to be effective for a number of trunks, especially the largest ones. Such advantages of size were probably an important factor in the recent merger wave, although a number of smaller carriers continue to compete successfully.

### Options to Increase Competition

Taken as a whole, the airline industry has performed competitively during the deregulated era. But the recent industry consolidation has raised questions whether, in an increasing number of markets, carriers may have acquired the power to raise fares above costs. While



there is little evidence that consolidation has adversely affected the industry's overall performance, the Congress might wish to consider a number of options that could increase competition by making entry easier. A return to fare regulation, however, would be likely to create more problems than it would solve.

Frequent Flyer Programs. A frequent flyer program is essentially a rebate made after the purchase of a certain amount of air service. The motivation is obvious: a passenger accumulating mileage on one carrier's frequent flyer program will be reluctant to use another carrier. Moreover, large carriers have an advantage in offering frequent flyer programs in that they serve more destinations, making it easier for travelers to earn and use their travel awards. One way to end the advantage provided by frequent flyer programs would be to abolish them. Since the awards are essentially rebates, abolishing them might raise the price of air transportation unless it stimulated market entry.

Alternatively, the government could tax the travel awards. Such a policy would be warranted by sound tax policy and might somewhat reduce the importance of the programs. Many people acquire frequent flyer awards while traveling on business. Since the employer pays for the travel, the awards should be considered part of employee compensation and taxed accordingly. Travel awards earned because of personal travel should not be taxed, however.

Booking Fees and Commissions. Travel agents make reservations for more than 70 percent of all air travel. Airlines have developed computer reservation systems (CRS) to assist agents in making reservations and issuing tickets. There are currently five systems, all owned by airlines, although two of them account for the bulk of the business. These systems have proved to be effective in determining which airlines agents recommend. Moreover, the CRS owners require carriers to pay a booking fee for each reservation that a travel agent makes on one of their flights. These fees are apparently well in excess of the cost of the service provided. CRS owners face little competitive pressure in setting these booking fees: since travel agents do not have to pay the booking fees, they do not consider them in deciding which system to select. If travel agents, rather than carriers, were required to pay the booking fees, CRS owners would have to compete with one another in establishing the fees. Depending on how commission rates responded,

such a rule could lower the costs of carriers that do not own computer reservation systems.

Airlines use an elaborate schedule of commissions to influence travel agent recommendations. Carriers that own computer reservation systems monitor the booking practices of agents and apparently use this information in determining agent compensation. In addition to a basic commission rate, most airlines pay their agents "commission overrides" when sales exceed some predetermined level. If differences in commissions paid to different agents had to be cost-justified, then the value of computer reservation systems would presumably be reduced. Even aside from the issue of the computer reservation systems, the commission overrides can adversely affect small carriers, which often have to pay the overrides on a greater percentage of travel agent sales than do larger carriers.

Foreign Carriers in Domestic Markets. Currently, foreign carriers are prohibited from carrying domestic passenger traffic in the United States. Foreign carriers would like to serve domestic markets as a way of supporting their international services, as hub-and-spoke route systems have become important on international as well as domestic routes. Such service would not only provide added competition for domestic carriers, but would be a means by which the United States could negotiate expanded route rights for U.S. airlines in foreign markets.

## CONGESTION

---

The amount of air traffic the aviation system can handle depends on the runway and traffic control capacity at airports, and on the capacity of the airway system that guides aircraft flying between airports. Congestion results when there is more air traffic than airports or airways can accommodate at one time. The growth of congestion in recent years reflects the fact that investments in these systems have failed to keep up with the changes in the airline industry under deregulation. Not only has traffic increased substantially, but it has tended to be concentrated at airports where carriers have established hubs.

---

### Current Management of the Aviation System

The Federal Aviation Administration (FAA) views the aviation system as a highway, open and available to all. Its response to increased demand is to try to increase the size of the system. But until new capacity becomes available, users of the system will continue to experience congestion and delays.

Aside from permitting delays, the government has used several other administrative methods to ration scarce capacity among users. One method is to establish a fixed number of landing and takeoff rights, or "slots," and to distribute these slots among potential users. In 1986, the government allowed carriers to buy and sell these landing rights at four airports where slots are currently used. Another method used to deal with congestion is to shift landing and takeoff schedules through agreements among the carriers. The government also publishes statistics showing airlines' on-time performance as a way of spurring them to adjust their schedules and operations so as to reduce the number of flights that are chronically late. The FAA has also developed reliever airports to reduce congestion at busy airport centers.

Continued use of such methods will do little to reduce congestion in the future. Takeoff and landing slots limit congestion, but increasing the number of airports in which they are used poses a serious threat to competition: a carrier may have difficulty in securing the necessary operating rights to mount a viable service. As the number of airports under slot restrictions increases, these problems magnify. Moreover, measures such as publishing on-time statistics and shifting schedules can do little to reduce the use of congested facilities.

### Options for Reducing Congestion

Two broad options for reducing congestion are to expand the capacity of the aviation system and to manage existing capacity better.

Expanding Capacity. At present, the problems of congestion appear to be greatest with respect to airport runway and terminal facilities. The government could assist in the expansion of airport capacity by directing a larger share of its airport grants to large commercial air-

ports. Yet, this would probably have only a limited effect. Many congested airports do not have space to build the new runways necessary for increased operations. At others, noise and land-use concerns have limited major expansion for more than a decade. Moreover, additional airport facilities can only ease congestion at airports that have sufficient tower capacity. At a number of airports, additional tower capacity may not be available until the National Airspace System Plan nears completion in the mid-1990s.

Expanding capacity would also be relatively expensive. Since much of the capacity shortage is not chronic but merely occurs at peak travel times, investing in more infrastructure could result in substantial excess capacity at off-peak travel times.

Managing Capacity. Rather than attempting to build an aviation system that can handle all users, the Congress might consider the alternative of introducing more effective methods of managing existing capacity. Specifically, the FAA could be required to limit access to the system at any particular time to aircraft operators who value the access at more than the costs they impose by their use. Costs include not only the direct costs of using the aviation system, but also the congestion costs associated with operating an additional flight.

A national system of cost-based pricing could lead to efficient management of current capacity and provide proper signals for its expansion. At congested airports, peak-period charges could be collected in addition to current taxes. Alternatively, the current tax system could be replaced with an entirely new method of paying for use of the aviation system, in which prices would reflect both the costs of providing aviation system services for a particular flight and the overall costs of congestion. Regardless of which method was used, the charges could cover the costs of operating the aviation system and also the costs of delay that an additional flight imposes on air travelers. Both methods would help to substitute existing capacity for new capacity by shifting the flights of those not willing to pay higher fees during peak periods to other times or other airports.

The second approach--replacing the existing system of financing the aviation system with a new system--is probably the better option. The use of peak surcharges would carry forward the distortions caused

---

by the subsidies that are part of the current aviation tax system. Although setting the initial prices for air traffic control services might be difficult, once they were set they would be relatively easy to adjust. When demand exceeded capacity at a given time, the price would be raised. At times of excess capacity, the price would be dropped. Since service to small communities might be adversely affected by such a pricing system, some special provision could be made for flights to such communities.



## CHAPTER I

# AN OVERVIEW OF AIRLINE DEREGULATION

---

---

---

The Congress deregulated the airline industry in order to secure lower air fares. While deregulation has achieved this goal, it has also brought a number of less widely anticipated developments. Concentration in the industry has increased: the largest airlines now have a greater share of the traffic than they did when the industry was regulated. The fare structure has become increasingly complex: passengers within a given market, and indeed on the same flight, pay widely different fares. Most important, perhaps, carriers have dramatically changed their route systems: hub-and-spoke networks have not only increased service convenience but have increased competition as well.

The combination of fare reductions and route realignments, however, has strained the capacity of the aviation system. The increase in air travel resulting from deregulation has placed additional burdens on airports as well as on an air traffic control system that was already rapidly becoming obsolete. While the public has gained from improved service and lower fares, these gains are threatened by increased congestion. Convenient service, and in fact the competitiveness of the industry, depend critically on the efficient operation of the aviation system.

## THE REGULATION AND DEREGULATION OF THE AIRLINE INDUSTRY

---

The Congress established the Civil Aeronautics Board (CAB) in 1938 and gave it the authority to determine the carriers that could provide interstate service, the routes they served, and the prices they charged.<sup>1/</sup> The CAB established two principal classes of airlines. The largest carriers, or "trunks," concentrated on serving routes between major metropolitan areas. The Congress had recognized their route

---

1. Originally the CAB also had responsibility for regulating safety. In 1958, the Congress established the Federal Aviation Administration, which assumed these responsibilities.

authority when it established the board.<sup>2/</sup> In addition, the CAB created "local service carriers" after World War II to provide regional service to smaller cities.

Profitability was the critical factor in determining fare levels. Differences in fares among markets were based almost exclusively on distance, although distance is not the only determinant of costs. (For example, it usually costs less to transport a passenger in heavily traveled markets or in vacation markets than on otherwise similar routes.)<sup>3/</sup> In addition, the CAB deliberately set fares in short-haul markets below costs, and fares in long-haul markets above costs.

These differences between regulated fares and the costs of service represented, in part, an attempt by the CAB to make passengers in dense long-haul markets subsidize those in thinner short-haul markets. In practice, the cross-subsidy never worked very well, because the CAB could not restrict nonprice competition. It did, however, permit more than one carrier to serve many dense markets, so carriers frequently competed in such things as service amenities and the number of flights they offered.<sup>4/</sup> Since schedule competition invariably lowered the percentage of seats that were filled, it increased costs. In effect, instead of setting prices equal to costs, CAB regulation set costs equal to fares.

Academic critics began questioning the need for economic regulation of the airline industry in the 1960s. It was not until the mid-1970s, however, that the Congress seriously considered changing the regulatory regime. A number of factors motivated a Congressional inquiry. Most notably, for a number of years, fares in markets served by intrastate carriers in California and Texas had been significantly lower than in otherwise similar interstate markets. Only carriers providing interstate service were subject to CAB regulation. Moreover,

- 
2. Before it established the Civil Aeronautics Board, first the Post Office and then the Interstate Commerce Commission had regulated the industry. For a brief history of the pre-CAB period, see Michael Levine, "Is Regulation Necessary? California Air Transportation and National Regulatory Policy," *Yale Law Journal* (July 1965), pp. 1416-1447.
  3. For further discussion of these issues, see Elizabeth Bailey, David Graham, and Daniel Kaplan, *Deregulating the Airlines* (Cambridge, Mass.: MIT Press, 1985), pp. 48-60.
  4. Under regulation, it was generally believed in the industry that if a carrier increased the percentage of flights it offered in a market, its share of passengers would increase more than proportionately.



the CAB consistently turned down applications of new low-fare carriers to enter the industry.

While the Congress was investigating the effects of airline regulation, Presidents Ford and Carter appointed CAB members who were committed to a more flexible regulatory regime. Beginning in 1977, the CAB progressively increased the carriers' latitude to reduce fares. These regulatory initiatives provided vivid evidence that CAB policies had indeed been yielding unnecessarily high fares. Largely as a result, real air fares fell by more than 8 percent in 1978 and traffic increased by almost 17 percent.<sup>5/</sup>

The Congress passed the Airline Deregulation Act in October 1978 that gradually phased out the CAB's authority over routes and rates. The CAB itself was to cease operations on January 1, 1985, two years after its authority to regulate fares ended. The Department of Transportation assumed the CAB's responsibilities in areas such as international aviation, antitrust, and consumer protection.<sup>6/</sup>

In addition to removing government barriers to entry, the Airline Deregulation Act also removed government barriers to exit: the CAB had prevented carriers from suspending service on many unprofitable small routes. The act did, however, guarantee that the government would subsidize service to communities that would have been left without scheduled air service. Although this guarantee of air service was to expire in 1988, the Congress has continued to subsidize service to such communities. None of the provisions of the Airline Deregulation act applied to the regulation of safety, which remained the province of the Federal Aviation Administration.

---

5. Air fares are measured in cents per mile. Air traffic is measured in revenue passenger miles; a revenue passenger mile is one paying passenger flying one mile.

6. The Airline Deregulation Act did not apply to international services that are governed by agreements of the United States with foreign governments. The Sunset Act, passed shortly before the CAB closed, changed some of the Airline Deregulation Act's provisions for distributing the CAB's responsibilities among other agencies.

## THE EFFECTS OF DEREGULATION

---

Deregulation took place gradually; the process began in 1977 when the CAB gave carriers greater flexibility to reduce fares. Although its regulatory authority did not formally expire until January 1983, the CAB effectively gave carriers the authority to determine the routes they served and the prices they charged more than two years earlier.

There can be little question that deregulation has delivered on its promise of creating a more efficient industry. Labor productivity has increased at an average annual rate of 3.8 percent since 1978, compared with 2.3 percent between 1970 and 1978 (see Figure 1).<sup>7/</sup> Similarly, air traffic has grown faster and air fares have fallen more rapidly than they did while the industry was regulated (see Figures 2 and 3). Deregulation has also produced an industry that is fundamentally different from that created by the CAB during 40 years of regulation.

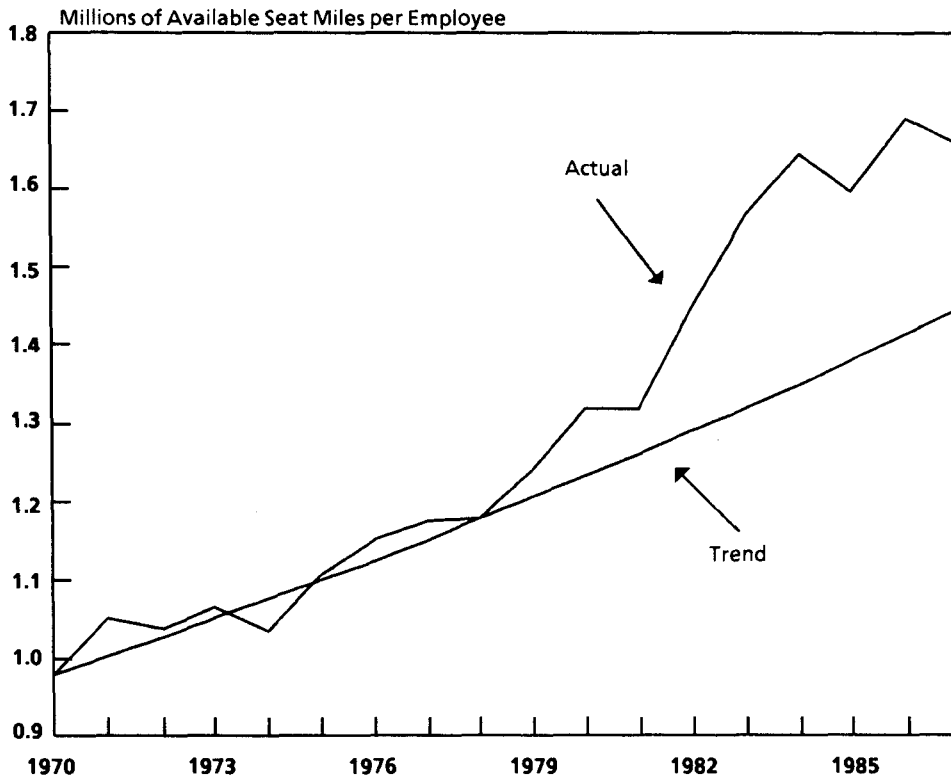
### The Boom (1977-1979)

In early 1977, the CAB approved requests by Texas International and American Airlines to introduce restricted discount fares. This reversed a policy that the CAB had adopted only a few years earlier. Most notably, American Airlines proposed to offer fares up to 45 percent below its unrestricted coach fare for travel between New York and San Francisco or Los Angeles. To be eligible for the discount fares, passengers had to purchase their tickets 30 days before departure and could not return from their destinations for at least 7 days. In response to these discounts, traffic on the routes increased dramatically and the CAB approved similar fares for other transcontinental markets. Gradually the CAB allowed carriers to introduce equivalent discounts in an increasing number of markets, and by the spring of 1978 these "Super Saver" fares were available in virtually all markets. Moreover, over time carriers reduced both the minimum stay and the advance purchase requirements attached to these fares.

---

7. Labor productivity is defined as available seat miles per full-time employee; for a given flight the number of available seat miles is equal to the number of seats on the aircraft times the distance of the flight.

**Figure 1.**  
**Labor Productivity**  
**Actual vs. Trend Under Regulation**



SOURCE: Congressional Budget Office, from Department of Transportation data and CBO estimates.

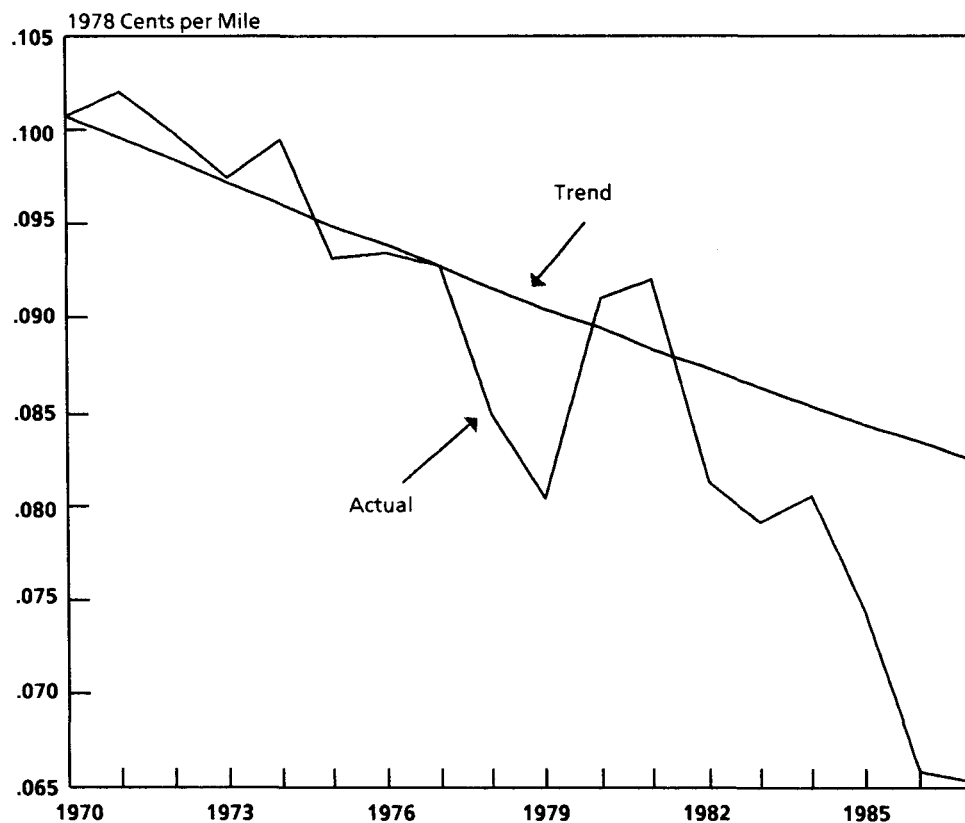
NOTE: Includes both domestic and international operations. In computing the trend, labor productivity is assumed to have grown after 1978 at the same rate it had grown between 1970 and 1978. Employment data are for December. Part-time employees are counted as one-half full-time workers.

Discount fares were not new to the aviation industry.<sup>8/</sup> Super Saver fares differed, however, from the myriad of previous discounts

8. It costs an airline very little to accommodate a passenger in an otherwise empty seat. Most of the costs of operating a flight--for the airplane, the crew, and the required maintenance--are not affected by the number of passengers aboard. Even the amount of fuel consumed is hardly affected. Advance purchase and minimum stay requirements assure that business travelers will not be able to take advantage of these low fares. Thus, fares like the Super Saver are profitable if they merely stimulate sufficient travel among price-sensitive passengers.

in two significant respects. In the first place, the fares were more restrictive and the discounts larger than their predecessors. In addition, on popular flights, carriers often offered narrower discounts and made fewer seats available. In effect, they used these restricted discount fares as a form of peak/off-peak pricing.

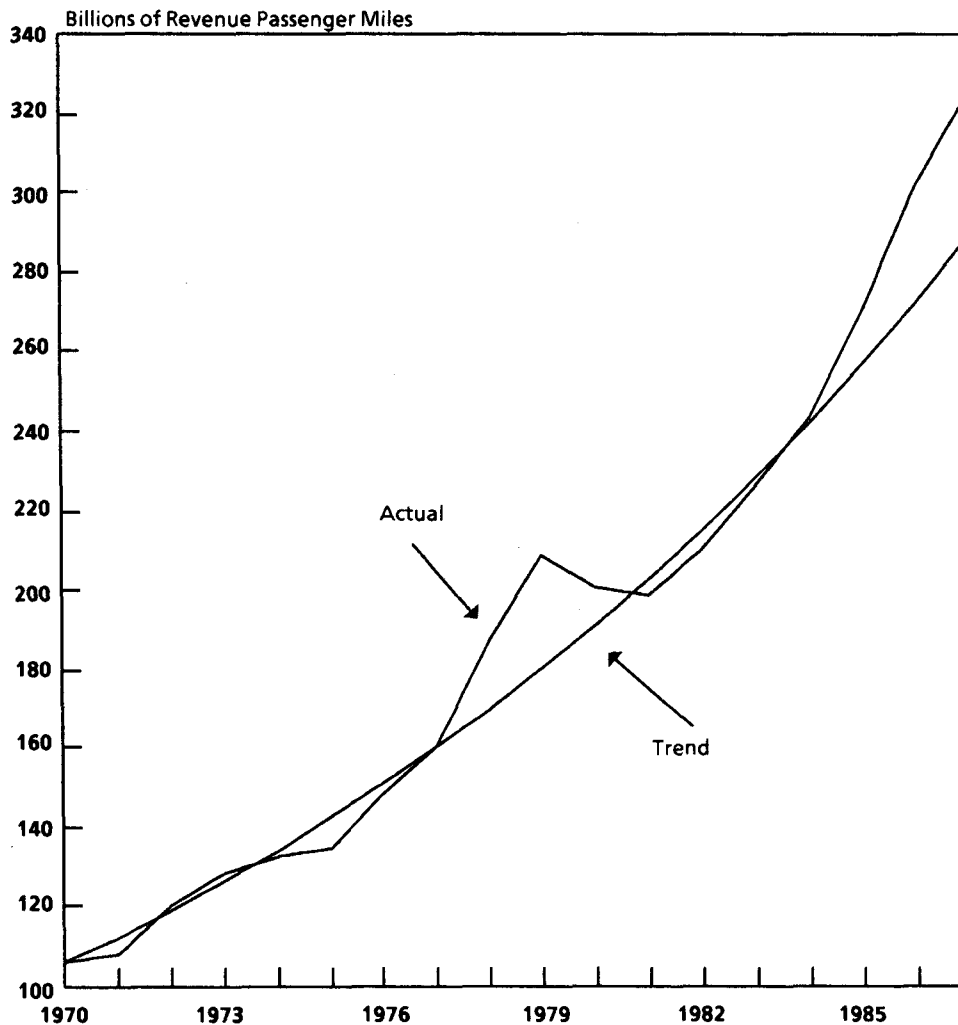
Figure 2.  
Domestic Air Fares  
Actual vs. Trend Under Regulation



SOURCE: Congressional Budget Office, from Department of Transportation data.

NOTE: In computing the trend, the average fare per mile is assumed to have declined after 1977 at the same rate as it had declined between 1970 and 1977.

Figure 3.  
Air Traffic of Scheduled Domestic Carriers  
Actual vs. Trend Under Regulation



SOURCE: Congressional Budget Office, from Department of Transportation data, annual reports, and CBO estimates.

NOTE: In computing the trend, traffic is assumed to have grown after 1977 at the same rate as it had grown between 1970 and 1977.

Much of the traffic stimulated by the discount fares filled seats that would otherwise have been empty. For that reason, although average fares declined, industry profits increased. The Congress and